

What is Claimed Is:

1. A method of providing protection against arc flash during maintenance on a low voltage power circuit including a circuit breaker having a specified trip function for responding to a fault, the method comprising:

overriding the specified trip function with a maintenance trip function that results in reduced arc energy in the fault during a trip over arc energy during a trip with the specified trip function; and

restoring the specified trip function following maintenance.

2. The method of Claim 1, wherein the specified trip function comprises a specified pickup current and a specified time delay and overriding the specified trip function comprises reducing at least one of the specified pickup current and the specified time delay.

3. The method of Claim 1, wherein overriding the specified trip function comprises reducing both the specified pickup current and the specified time delay.

4. The method of Claim 1, wherein the specified trip function comprises implementing one or more of an instantaneous trip function, a short delay trip function and a ground fault trip function and overriding the specified trip function comprises overriding each trip function implemented.

5. The method of Claim 4, wherein the short delay trip function is implemented with a specified short delay pickup current and a specified short delay time delay and wherein overriding the specified trip function comprises eliminating the specified short delay time delay.

6. The method of Claim 4, wherein the short delay trip function is implemented with a specified short delay pickup current and a specified short delay time delay and overriding the specified trip function comprises reducing the specified short delay pickup current.

7. The method of Claim 6, wherein overriding the specified trip function further includes reducing the specified short delay time delay.

8. The method of Claim 4, wherein the instantaneous trip function is implemented with a specified instantaneous pickup current and overriding the specified trip function comprises reducing the specified instantaneous pickup current.

9. The method of Claim 4, wherein the ground fault trip function is implemented with a specified ground fault pickup current and overriding the specified trip function comprises reducing the specified ground fault pickup current.

10. The method of Claim 9, wherein the ground fault trip function has a ground fault time delay and overriding the specified trip function further includes reducing the ground fault time delay.

11. The method of Claim 1, wherein overriding the specified trip function with a maintenance trip function comprises selecting one of a first maintenance trip function that results in a first level of arc energy in the fault during a trip that is less than the arc energy resulting from the specified trip function, and a second maintenance trip function that results in a second level of arc energy in the fault that is more than the first level of arc energy but less than the arc energy resulting from the specified trip function.

12. The method of Claim 1, wherein the low voltage circuit is multiphase and the maintenance trip function also causes a trip in response to a current imbalance in the multiple phases.

13. The method of Claim 1, wherein the maintenance trip function also causes a trip in response to a current reversal in the low voltage circuit.

14. The method of Claim 1, wherein the specified trip function incorporates a jumpered zone interlock providing a specified delay and overriding the specified trip function comprises eliminating the specified delay.

15. The method of Claim 14, wherein eliminating the specified delay comprises open circuiting the jumpered zone interlock.

16. The method of Claim 1, wherein overriding the specified trip function comprises providing an independent maintenance trip function in parallel with the specified trip function.

17. The method of Claim 1, wherein the specified trip function is overridden by substituting the maintenance trip function for the specified trip function, which is retained for restoring following maintenance.

18. A low voltage circuit breaker protecting from arc flash resulting from faults in a protected low voltage power circuit comprising;
separable contacts;

current sensors sensing current in the protected low voltage power circuit;

a trip unit responsive to the current sensors tripping open the separable contacts in response to a specified trip function; and

maintenance means overriding the specified trip function with a maintenance trip function that results in reduced arc energy in the fault during a trip over arc energy during a trip with the specified trip function.

19. The circuit breaker of Claim 18, wherein the maintenance means comprises a maintenance switch operative between a normal position selecting the specified trip function, and a maintenance position selecting the maintenance trip function.

20. The circuit breaker of Claim 19, wherein the maintenance trip function comprises a first maintenance trip function that results in a first level of arc energy in the fault during a trip that is less than the arc energy resulting from a trip with the specified trip function, and a second maintenance trip function that results in a second level of arc energy in the fault that is more than the first level of arc energy but less than the arc energy resulting from the specified trip function, and wherein the maintenance switch has a first maintenance position for selecting the first maintenance trip function and a second maintenance position for selecting the second maintenance trip function.

21. The circuit breaker of Claim 18, wherein the maintenance means comprises a maintenance plug insertable in the circuit breaker to implement the maintenance trip function.

22. The circuit breaker of Claim 21, wherein the maintenance plug comprises part of a maintenance trip circuit producing a trip at a lower current level than the specified trip function.

23. The circuit breaker of Claim 22 for a multiphase low voltage power circuit, wherein the circuit breaker includes an auctioneering circuit that selects a highest phase current for the maintenance trip function.

24. The circuit breaker of Claim 23, wherein the trip unit comprises a microprocessor providing the specified trip function and the maintenance trip circuit is in parallel with the trip unit.

03-EDP-303

25. The circuit breaker of Claim 22, wherein the maintenance trip circuit comprises a Zener diode that sets the lower current level.

26. The circuit breaker of Claim 18, wherein the trip unit comprises a zone interlock (ZO, ZI) and the specified trip function is a short delay trip function with a short delay and the maintenance means open circuits the zone interlock and eliminates the short delay of the short delay trip function.